C-A OPERATIONS PROCEDURES MANUAL

9.1.10 Specifications for C-A Radiation Area Barriers

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Collider-Accelerator Department Chairman Date

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9.1.10 Specifications for C-A Radiation Area Barriers

1. Purpose

This procedure establishes specifications for liaison engineers and C-A Radiation Safety Committee (RSC) members for radiation area barriers at the C-A.

2. Responsibilities

2.1 The C-A Radiation Safety Committee (RSC), in conjunction with the Facility Support (FS) Representative, will establish the classifications of the radiation areas.

2.2 The engineer in charge is responsible for overseeing that the constructed barrier meets the specifications.

2.3 Exceptions to the specifications may be granted on a case-by-case basis by the C-A RSC Chairman.

3. Prerequisites

3.1 A review of the area must have been previously conducted by the C-A RSC.

3.2 Trained and qualified C-A RSC members and Liaison Engineers.

4. Precautions

None

5. Procedure

5.1 Class I and II Radiation Areas.

5.1.1 The Barrier should fully enclose the area.

5.1.2 Barrier supports must each be able to withstand a 100 lb. load, be located inside the radiation area, and must be spaced such that barrier material deflections are less than 8inches with a 50 lb. load in any direction.

5.1.3 Barrier material should not be able to be cut with a knife and have a minimum breaking strength of 300 lb./ft., including seams.

5.1.4 Appropriate radiological postings shall be attached to the barrier entrances, and every 40 feet (maximum), on barriers which are not made of concrete or steel shielding.

5.1.5 Small gaps that only allow "hand access" (approximately 4 inches) are acceptable for Class II area barriers. Each gap must be reviewed by the FS Representative, or the designee, and have an identifying sign.

5.1.6 Temporary barriers must be approved by two members of the C-A Radiation Safety Committee, a FS Representative, and the Liaison Physicist.

*Where a barrier for a Class II area is within a Class III area, paragraphs 5.1.2, 5.1.3 and 5.1.4 of this procedure, may be replaced by paragraphs 5.2.2, 5.2.3 and 5.2.4.

5.2 Class III and IV Radiation Areas.

5.2.1 Barrier should be at least 6 feet high above surrounding walkways. Shield top walkways around these areas need not be fenced if the drop into these areas is 6 feet or more.

5.2.2 Barrier supports must be: located inside the Radiation Area, able each to withstand a 50 lb. Load, and be spaced such that barrier material deflections are less than 12 inches with a 50 lb. load in any direction.

5.2.3 A knife should not be able to cut the barrier material, and the material should have a minimum breaking strength of 100 lb./ft.

5.2.4 Appropriate radiological postings shall be attached to the barrier entrances, and every 40 feet (maximum), along the perimeter, including the edges of shield top drops into the areas.

5.2.5 Small gaps (typically 6 inches) are allowed, but must be reviewed by the FS Representative or designee. Each gap must have an identifying sign.

5.2.6 Temporary Barriers:

5.2.6.1 May not be used for more than 4 weeks without re-review.

5.2.6.2 May use a cut-able material if it meets all other specifications and it is secured to metal supports, top and bottom.

5.2.6.3 Must be reviewed by the FS Representative or designee.

5.3 Class V Radiation Areas.

5.3.1 Barrier should at least be 3 feet high above surrounding walkways.

5.3.2 Barrier must be affixed to supports, walls etc., of less than 15 feet spacing.

5.3.3 Barrier material shall be secured firmly to its supports and not be permanently deflected more than 8 inches with a 5 lb. force.

5.3.4 Radiation area warning signs must be attached to the fence every 40 feet (maximum).

5.3.5 Gaps (i.e. entrances) in the barrier must be less than 12 feet.

5.3.6 Temporary barriers may be HP tapes and stanchions.

5.4 Class VI Controlled Areas

5.4.1 Area must be clearly marked with barriers or posting, e.g.: Fences, Building Walls, Shielding, etc.

5.4.2 Posting is required every 40 feet. Gaps shall be posted with signs appropriate in size and location for the size and type of entrance.

6. Documentation

None

7. References

None

8. Attachments

None